



## APPLICATION FOR RECLAMATION PERMIT FORM SM-8A

Check appropriate box(es): ☐ new permit ☒ revision of existing permit ☐ transfer of permit ☐ expansion

**NOTE:** Do not attempt to complete this form until you have carefully read the accompanying instruction document (SM8AINST.PDF). Do not attempt to use this form as an MS Word Template unless you are familiar with the use of templates in MS Word.

<b>1. NAME OF APPLICANT/PERMIT HOLDER(S)</b> Good Construction			<b>12. Are all of these mines now in compliance with RCW 78.44, WAC 332-18, and conditions of the permits?</b> <input checked="" type="checkbox"/> yes <input type="checkbox"/> no		
<b>2. MAILING ADDRESS</b> 265 Rupp Road Toledo, WA 98591			<b>13. Have you ever had a surface mine operating or reclamation permit revoked?</b> <input type="checkbox"/> yes <input checked="" type="checkbox"/> no  Have you ever had a reclamation security forfeited? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If you answered yes to either of the above, list the permit number(s):		
<b>3. Telephone 360.864.2974</b> UBI No. 601493426			<b>14. Type of proposed or existing mine:</b> <input type="checkbox"/> pit <input checked="" type="checkbox"/> quarry Material(s) to be mined: <input type="checkbox"/> sand and gravel <input checked="" type="checkbox"/> rock or stone <input type="checkbox"/> clay <input type="checkbox"/> metal <input type="checkbox"/> limestone <input type="checkbox"/> silica <input type="checkbox"/> other _____  Deposit type: <input type="checkbox"/> glacial <input type="checkbox"/> river floodplain (alluvial) <input type="checkbox"/> river channel deposits <input type="checkbox"/> talus <input checked="" type="checkbox"/> bedrock <input type="checkbox"/> lode <input type="checkbox"/> unknown <input type="checkbox"/> other _____		
<b>4. NAME OF MINE</b> Good Quarry			<b>15. Total Acreage and Depth of Permit Area: 32.0 Acres</b> (Include all acreage to be disturbed by mining, setbacks, buffers, and associated activities during the life of the mine.) (See Form SM-6.)  Total area disturbed will be <u>21.1</u> acres. Area to be disturbed in next 36 months will be <u>0.0</u> acres.  Maximum vertical depth below pre-mining topographic grade is <u>105</u> feet. Maximum depth of excavated mine floor is <u>320</u> feet relative to mean sea level		
<b>5. Street address and milepost of surface mine</b> MP 3.08 Tennessee Road Evaline, WA  1600 feet south of Pleasant Valley Road/Tennessee Road intersection			<b>16. Expected start date of mining</b> current		
<b>6. Distance (miles)</b> 4			<b>17. Estimated number of years</b> 10		
<b>7. Direction from</b> South			<b>18. Total quantity to be mined over life of mine (estimated):</b> 750,000 <input type="checkbox"/> tons, or <input checked="" type="checkbox"/> cu yds		
<b>8. Nearest community</b> Napavine			<b>19. Estimated annual production:</b> up to 100,000 <input type="checkbox"/> tons, or <input checked="" type="checkbox"/> cu yds		
<b>9. COUNTY Lewis</b> No attachments will be accepted. Legal Description of permit area: 1/4 1/4 Section Township Range SE NW 8 12N 2W, WM NE SW 8 12N 2W, WM					
<b>10. TOTAL ACREAGE OF PERMIT AREA APPLIED FOR</b> (include all acreage to be disturbed by mining, setbacks, buffers, and associated activities during the life of the mine.) 32.0 acres					
<b>11. Do you or any person, partnership, or corporation associated with you now hold, or have you held, a surface mining operating or reclamation permit?</b> <input checked="" type="checkbox"/> yes <input type="checkbox"/> no If you answered yes to the above, please list:					
Permit Number		Active Operation?		Reclamation current/complete?	
		Yes	No	Yes	No
70-012859		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>20. Subsequent land use:</b> <input type="checkbox"/> industrial <input type="checkbox"/> commercial <input type="checkbox"/> residential <input type="checkbox"/> agricultural <input checked="" type="checkbox"/> forestry <input checked="" type="checkbox"/> wetlands and lakes <input checked="" type="checkbox"/> Other <u>Recreation</u>  Reclaimed elevation of floor of mine: <u>320</u> feet relative to mean sea level  Reclaimed elevation is shown on cross sections? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no  Subsequent land use is compatible with County or Municipal comprehensive plan? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no  County or Municipality Approval for Surface Mining (Form SM-6) attached? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no  SEPA Checklist required? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no  If any answers are no, explain: <b>SEPA is not required for this SMR Permit revision.</b>					
<b>21. Application fee for a new reclamation permit is herewith attached?</b> <input type="checkbox"/> yes <input checked="" type="checkbox"/> no					

## CHECKLIST OF RECLAMATION STANDARDS

If no, explain: **A 25-foot buffer has been established along the intermittent drainage located north of the mining area, per Lewis County Interim Critical Areas Ordinance (17.35.680) for rural Type 5 streams.**

Copy of Shoreline Permit from local government or the Dept of Ecology is attached? <b>N/A</b>	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
Hydraulic Project Approval from the Department of Fish and Wildlife is attached? <b>N/A</b>	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no

### 23E. Conservation Buffers

Conservation buffers will be established for the following purpose(s): *(Check all that apply)*  
☐ unstable slopes    ☐ wildlife habitat    ☐ water quality    ☐ other \_\_\_\_\_

**N/A**

Describe the nature and configuration of the conservation buffer(s): **N/A**

Conservation setbacks are shown on maps and have been marked on the ground with permanent boundary markers? <b>N/A</b>	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
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### 23F. Ground Water

High water table depth is **23** feet ☐ relative to mean sea level, ☒ below original surface, or ☐ unknown.

Low water table depth is **218** feet ☐ relative to mean sea level, ☒ below original surface, or ☐ unknown.

Annual fluctuation of water table is from \_\_\_\_\_ feet on \_\_\_\_\_ to \_\_\_\_\_ feet on \_\_\_\_\_. **SEE NARRATIVE**

Direction of ground water flow: **Northeasterly. See "Hydrogeologic Assessment Proposed Good Quarry Site Evaline, WA by Kleinfelder, 1/19/1997. Aquifer is both confined and unconfined. Mining operations will not encounter the water table."**

Are well logs attached?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
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Is the aquifer perched?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
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Is the shallowest aquifer: ☒ confined    ☒ unconfined    **see above**

The site will be mined: ☐ wet    ☒ dry    ☐ both

Describe mining method: **Blasting and cut to final topography.**

The site is in a: **N/A**  
☐ critical aquifer recharge area    ☐ sole source aquifer    ☐ public water supply watershed  
☐ wellhead protection area    ☐ special protection area    ☐ designated aquifer protection area

Ground water study attached? <b>SEE NARRATIVE</b>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
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**If yes, see "Additional Information Requirements for Hydrologically Sensitive Areas." This document is included in the SM8AINST.PDF file.**

If no, explain:

### 23G. Archeology

Are archeological/cultural resource sites present?	<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
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If yes, describe how you will protect these resources:

## 4. MINING PRACTICES TO FACILITATE RECLAMATION

### 24A. Soil Replacement

Topsoil will be saved?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
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If no, explain:

Up to 4 feet of topsoil and (or) subsoil will be restored?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
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If no, explain: **SEE NARRATIVE**

Topsoil will be restored and seedbeds prepared as necessary to promote effective revegetation and to stabilize slopes and mine floor?	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
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If "yes" give details, if "no", explain: **Addressed in the Narrative.**

## CHECKLIST OF RECLAMATION STANDARDS

### 22. SEGMENTAL RECLAMATION

Permit area has been divided into segments for mining and a mining schedule has been developed? ☒ yes ☐ no  
If no, explain:

Permit area has been divided into segments for reclamation and a reclamation schedule has been developed? ☒ yes ☐ no  
If no, explain:

### 23. SITE PREPARATION

#### 23A. Permit and Disturbed Area Boundaries

Boundary of the permit area has been marked on the ground with permanent boundary markers? ☒ yes ☐ no  
Explain boundary markers: **Permanent markers (metal posts) delineating permit boundary have been installed.**

#### 23B. Saving Topsoil, Subsoil, and Overburden for Reclamation

Thickness of topsoil is 0-1.0 feet (inconsistent depth)

Thickness of subsoil is 5.0 feet (inconsistent depth)

Depth to bedrock is 0-5 feet

Total volume of topsoil is 5,823 cubic yards

Total volume of subsoil is 150,297 cubic yards

Volume of stored topsoil/subsoil is 5,823/150,297 cubic yards and will require 2-3 acres for storage. **SEE NARRATIVE**

Storage areas are shown on maps and have been marked on the ground with permanent boundary markers? ☒ yes ☐ no

Topsoil will be salvaged? ☒ yes ☐ no

If no, explain: **Topsoil piles will be marked upon approval of revision.**

Topsoil and overburden will be moved to reclaim an adjacent depleted segment? ☒ yes ☐ no

If no, explain:

Before materials are moved, vegetation will be cleared and drainage planned for soil storage areas? ☒ yes ☐ no

If no, explain:

Soil storage areas will be stabilized with vegetation to prevent erosion if materials will be stored for more than one season? ☒ yes ☐ no

If no, explain:

#### 23C. Setbacks and Screens

Maximum depth of the mine will be 130 feet from 450 feet (*highest*) to 320 feet (*lowest*) elevation relative to mean sea level..

**These figures are maximum relief. Maximum vertical excavation at any given point will be 105 feet bgs.**

The setback for this site will be 15+ feet wide. **SEE NARRATIVE**

Is a permanent, undisturbed buffer planned for this site? ☒ yes ☐ no

If no, explain: **SEE NARRATIVE**

Setbacks are shown on maps and have been marked on the ground with permanent boundary markers? ☒ yes ☐ no

If no, explain: **SEE NARRATIVE.**

Does this site have a backfilling plan that addresses the protection of adjacent property and how the final, stable slopes are to be achieved? ☐ yes ☒ no

If no, explain: **Backfilling will not occur as part of reclamation. Slopes will be created to final configuration by mining operations.**

#### 23D. Buffers to Protect Streams and Flood Plains

*yes, see "Additional Information Requirements for Flood Plain Mines." This document is included in the SM8AINST.PDF file.*

A stream buffer of at least 200 feet has been marked on the ground with permanent boundary markers? ☐ yes ☒ no

A buffer of at least 200 feet from the 100-year flood plain has been marked on the ground with permanent boundary markers? ☐ yes ☒ no

## CHECKLIST OF RECLAMATION STANDARDS

Subsoil will be replaced to an approximate depth of 3.0 feet on the pit floor and a depth of 2.0-3.0 feet on slopes.

Topsoil will be replaced to an approximate depth of 0.0 feet on the pit floor and a depth of 1.0 feet on slopes. **SEE NARRATIVE.**

### **Specific slopes prioritized,**

Topsoil will be distributed evenly over the site? ☐ yes ☒ no  
If no, explain: **SEE NARRATIVE**

If topsoil is in short supply, it will be strategically placed in depressions and low areas in adequate thickness to conserve moisture and promote revegetation? **SEE NARRATIVE** ☒ yes ☐ no  
If no, explain:

Topsoil will be moved when conditions are not overly wet or dry? ☒ yes ☐ no  
If no, explain:

Topsoil will be imported? ☐ yes ☒ no  
If yes, describe source. If no, explain:

Synthetic topsoil made from compost, biosolids, or other amendments will be used and (or) made on site to supplement existing topsoil? ☐ yes ☒ no  
If yes, explain:

Materials such as till, loess, and (or) silt are available on site that could be used to supplement topsoil for reclamation. ☐ yes ☒ no  
If yes, explain:

Silt from settling ponds or a filter press will be used for reclamation? ☐ yes ☒ no  
If yes, explain:

Settling pond clay slurries will be pumped or hauled to other segments for reclamation? ☐ yes ☒ no  
If yes, explain:

Topsoil will be replaced with equipment that will minimize compaction, or it will be plowed, disked, or ripped following placement? ☒ yes ☐ no  
If no, explain:

Topsoil will be immediately stabilized with grasses and legumes to prevent loss by erosion, slumping, or crusting? ☒ yes ☐ no  
If no, explain:

Topsoil stockpile areas are shown on maps and will be marked on the ground with permanent boundary markers to protect from loss? ☒ yes ☐ no  
If no, explain:

Segmental topsoil removal and replacement is shown on maps? ☒ yes ☐ no  
If no, explain: **Mining and reclamation are one segment. SEE NARRATIVE**

Topsoil salvage and replacement plan included? ☒ yes ☐ no  
If no, explain:

### **24B. Removal of Vegetation**

Vegetation will be removed sequentially from areas to be mined to prevent unnecessary erosion? ☒ yes ☐ no  
If no, explain:

Small trees and other transplantable vegetation will be salvaged for use in revegetating other segments? ☐ yes ☒ no  
If yes, give details. If no, explain: **Salvageable vegetation does not exist on the mine site.**

## CHECKLIST OF RECLAMATION STANDARDS

Wood and other organic debris will be:

☐ recycled    ☐ removed from site    ☐ chipped    ☒ burned    ☐ buried    ☐ used to synthesize topsoil or mulch  
☒ other (explain) **Woody debris will be salvaged and used for reclamation where applicable.**  
 solid waste disposal, burning, and land use permits are attached?    N/A    ☐ yes    ☒ no

Some coarse wood (logs, stumps) and other large debris will be salvaged for fish and wildlife habitats?

☒ yes    ☐ no

If yes, give details. If no, explain: **Large woody debris will be salvaged and placed strategically on the site upon reclamation to provide habitat.**

### 24C. Erosion control for Reclamation

Pit floor will slope at gentle angles toward highwall, sediment retention pond, or proper drainage?

☒ yes    ☐ no

If yes, give details. If no, explain: **The pit floor will slope at gentle angles toward sediment retention pond facility.**

Revegetation, sheeting, and (or) matting will be used to protect areas susceptible to erosion?

☒ yes    ☐ no

If yes, give details. If no, explain: **Revegetation will be used to protect areas susceptible to erosion.**

Water control systems used for erosion control during segmental reclamation will:

Divert clean water around pit?

☒ yes    ☐ no

Trap sediment-laden runoff before it enters a stream?

☒ yes    ☐ no

Result in essentially natural conditions of volume, velocity, and turbidity?

☒ yes    ☐ no

Handle a 25-year, 24-hour peak event?

☒ yes    ☐ no

(Have you attached calculation?)

☒ yes    ☐ no

Be removed or reclaimed?

☐ yes    ☒ no

If any answers are no, explain: **Sediment retention pond facility will remain as a permanent feature.**

Will any water control systems be removed upon final reclamation?

☐ yes    ☒ no

If yes, explain:

Water control measure will be established to prevent erosion of setbacks and neighboring properties?

☒ yes    ☐ no

If yes, give details. If no, explain: **Surface waters and incidental seepage are directed to the settling pond system. Clean water will exit the site from the retention pond system via culvert to a natural Type 4 "stream" at the east end of the site. Berms have been constructed in areas where surface waters might encounter mining activity, such that water does not leave the site that has not been cleaned. Neighboring properties will not be affected by this operation.**

Storm-water conveyance ditches and channels will be lined with vegetation or riprap?

☐ yes    ☒ no

If yes, give details. If no, explain: **Conveyance ditches and channels are not necessary, as on-site water is directed to the retention system. Stormwater leaves the retention system after settling occurs and flows via culvert to natural drainages off-site.**

Natural and other drainage channels will be kept free of equipment, wastes, stockpiles, and overburden?

☒ yes    ☐ no

If no, explain:

## 25. RECLAMATION TOPOGRAPHY

### 25A. Final Slopes

Final slopes will be created using the cut-and-fill method?

☐ yes    ☒ no

Explain procedure to be used: **Cut method to create final reclamation configuration.**

Slopes will be created by mining to the final slope using the cut method?

☒ yes    ☐ no

Explain procedure to be used: **Slopes will be created using cut method. Final slope configurations will be created through mining by cutting to final topographic configuration.**

Slopes will vary in steepness?

☒ yes    ☐ no

If no, explain:

## CHECKLIST OF RECLAMATION STANDARDS

Slopes will have a sinuous appearance in both profile and plan view? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Large rectilinear (that is, right angle, or straight, planar) areas will be eliminated? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Where reasonable, tracks of the final equipment pass will be preserved and oriented to trap moisture, soil, and seeds, and to inhibit erosion? If no, explain:	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
<b>25B. Slope Requirements for Pits and Overburden/Waste Rock Dumps (non-saleable products)</b>	
If the mine is a quarry or in hard rock, skip to Quarry section(25C).	
Slopes will vary between 2 and 3 feet horizontal to 1 foot vertical or flatter, except in limited areas where steeper slopes are necessary to create sinuous topography and control drainage? If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no
For pits, slopes will not exceed 2 feet horizontal to 1 foot vertical except as necessary to blend with adjacent natural slopes? Give details:	<input type="checkbox"/> yes <input type="checkbox"/> no
<b>25C. Slope Requirements for Quarries and Hardrock Metal Mines</b>	
If mine is a pit in unconsolidated materials covered by Section 25B, go to Section 25D	
Check the appropriate box(es) <input type="checkbox"/> Slopes will not exceed 2 feet horizontal to 1 foot vertical. <input type="checkbox"/> Slopes steeper than 1 foot horizontal to 1 foot vertical are an acceptable subsequent land use as confirmed on Form SM-6. <input type="checkbox"/> Hazardous slopes or cliffs are indigenous to the immediate area and already present a potential threat to human life. Photo and maps attached to document presence of cliffs. <input checked="" type="checkbox"/> Geologic or topographic characteristics of the site preclude slopes being reclaimed at a flatter angle and are an acceptable subsequent land use as confirmed on Form SM-6. <b>SEE NARRATIVE &amp; SM-6.</b>	
Slope stability analysis required? If yes, see "Additional Information Requirements for Mines with Potentially Unstable or Steep Slopes." This document is included in the SM8AINST.PDF file. Slope stability analysis provided by	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Measures will be taken to limit access to the top and bottom of hazardous slopes? N/A Describe measures, or if no, explain: N/A	
Selective blasting will be used to remove benches and walls and to create chutes, buttresses, spurs, scree slopes, and rough cliff faces that appear natural? <b>SEE NARRATIVE</b> Describe procedures, or if no, explain: <b>Where necessary, steeper slopes (1:1) will be blasted to create scree slopes.</b>	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no

## CHECKLIST OF RECLAMATION STANDARDS

Reclamation blasting will be used to reduce the entire highwall to a scree or rubble slope less than 2 feet horizontal to 1 foot vertical? Blasting plan is attached? If no, explain: <b>A blasting plan is not necessary. Cut-to-final-topography method of mining will be used.</b>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Access to benches will be maintained for reclamation blasting? If no, explain: <b>Reclamation blasting should not be necessary.</b>	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Small portions of benches will be left to provide habitat for raptors and other cliff-dwelling birds?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
<b>25D. Backfilling</b>	
Slopes will require backfilling? Depth of backfilling is <b>N/A</b> feet. Slope stability compaction analysis required? <b>N/A</b> Compaction analysis provided by	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Backfilling plan and (or) permits are attached? If no, explain: <b>Not necessary.</b>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Backfilling will be done with overburden material after topsoil has been separated? If no, describe composition and source of backfill material: <b>N/A</b>  Explain method of placement of fill: <b>N/A</b>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Locations of stockpiles are shown on maps and will be marked on the ground with permanent boundary markers?	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Will backfill be imported? If yes, give volumes needed to meet reclamation plan: <b>N/A</b>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Areas to be backfilled are shown on maps? If no, explain: <b>N/A</b>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
All grading/backfilling will be done with clean, inert, non-organic solids? If yes, give details. If no, explain: <b>N/A</b>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Backfilled slopes will be compacted? If yes, give details. If no, explain: <b>N/A</b>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no
Will you be backfilling into water? <b>N/A</b> If yes, is slope stability analysis attached? <b>N/A</b> If yes, describe method: <b>N/A</b>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> yes <input type="checkbox"/> no
<b>25E. Mine Floors</b>	
Flat areas will be formed into gently rolling mounds? If yes, give details. If no, Explain: <b>Flat areas on the mine floor will be formed, using machinery, into gently rolling mounds.</b>	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no

## CHECKLIST OF RECLAMATION STANDARDS

Mine floor will be gently graded into sinuous drainage channels to preclude sheetwash erosion during intense precipitation? If yes, give details. If no, explain: <b>Mine floor will be gently graded into sinuous drainage channels to preclude sheetwash erosion during intense precipitation.</b>	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no								
Mine floor and other compacted areas will be bulldozed, plowed, ripped, or blasted to foster revegetation? If yes, give details. If no, explain: <b>Upon final reclamation, overburden and topsoil will be ripped to facilitate revegetation.</b>	<input checked="" type="checkbox"/> yes <input type="checkbox"/> no								
<b>25F. Lakes, Ponds, and Wetlands</b>									
Is water currently present in the area or will the mining penetrate the water table? <i>If no, go to Section 25G.</i>	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no								
Reclaimed areas below the permanent low water table in soil, sand, gravel, and other unconsolidated material will have a slope no steeper than 1.5 feet horizontal to 1 foot vertical? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no								
If not already present, soils, silts, and clay-bearing material will be placed below water level to enhance revegetation? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no								
Some parts of pond and lake banks will be shaped so that a person can escape from the water? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no								
Armored spillways or other measures to prevent undesirable overflow or seepage will be provided to stabilize bodies of water and adjacent slopes? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no								
Wildlife habitat will be developed, incorporating such measures as: Sinuous and irregular shorelines? Varied water depths? Shallow areas less than 18 inches deep? Islands and peninsulas? Give details:	<table style="width: 100%;"> <tr><td><input type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> <tr><td><input type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> <tr><td><input type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> <tr><td><input type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> </table>	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> yes	<input type="checkbox"/> no
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<input type="checkbox"/> yes	<input type="checkbox"/> no								
<input type="checkbox"/> yes	<input type="checkbox"/> no								
Ponds or basins will: Be located in stable areas? Have sufficient volume for expected runoff? Have an emergency overflow spillway? Spillways and outfalls will be protected (for example, rock armor) to prevent failure and erosion? If any answers are no, explain:	<table style="width: 100%;"> <tr><td><input type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> <tr><td><input type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> <tr><td><input type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> <tr><td><input type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> </table>	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> yes	<input type="checkbox"/> no	<input type="checkbox"/> yes	<input type="checkbox"/> no
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<input type="checkbox"/> yes	<input type="checkbox"/> no								
<input type="checkbox"/> yes	<input type="checkbox"/> no								
<input type="checkbox"/> yes	<input type="checkbox"/> no								
Proper measures will be taken to prevent seepage from water impoundments that could cause flooding outside the permitted area or adversely affect the stability of impoundment dams or adjacent slopes? If yes, give details. If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no								
Written approval from other agencies with jurisdiction to regulate impoundment of water is attached? If no, explain:	<input type="checkbox"/> yes <input type="checkbox"/> no								
<b>25G. FINAL DRAINAGE CONFIGURATION</b>									
Drainage will be capable of carrying the peak flow of the 25-year, 24-hour precipitation event ( <i>Data are available at DNR Region offices</i> ) If yes, are calculations attached?	<table style="width: 100%;"> <tr><td><input checked="" type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> <tr><td><input checked="" type="checkbox"/> yes</td><td><input type="checkbox"/> no</td></tr> </table>	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no				
<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no								
<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no								

## CHECKLIST OF RECLAMATION STANDARDS

If yes, give details. If no, explain: **SEE APPENDIX E**

Drainages will be constructed on each reclaimed segment to control surface water, erosion, and siltation? ☒ yes ☐ no  
 Clean runoff is directed to a safe outlet? ☒ yes ☐ no  
 If either yes, give details. If no, explain: **Surface waters will be collected, particulates will settle prior to exiting via safe outlet.**

Are these shown on maps? ☒ yes ☐ no

The grade of ditches and channels will be constructed to limit erosion and siltation? ☒ yes ☐ no  
 If yes, give details. If no, explain: **SEE NARRATIVE**

Natural-appearing drainage channels will be established upon reclamation? ☒ yes ☐ no  
 If yes, give details. If no, explain: **SEE NARRATIVE**

### 26. SITE CLEANUP AND PREPARATION FOR REVEGETATION

#### 26A. Dealing with Hazardous Materials

Hazardous materials are present at the mine site? ☐ yes ☒ no

**If no, go to Section 26B**

The final ground surface drains away from any hazardous natural materials? ☐ yes ☐ no  
 If yes, give details. If no, explain:

Plan for handling hazardous mineral wastes indigenous to the site is attached? ☐ yes ☐ no  
 If no, written approval from all appropriate solid waste regulatory agencies attached? ☐ yes ☐ no

#### 26B. Removal of Debris

All debris (garbage, 'bone piles', treated wood, old mining equipment, etc.) will be removed from the mine site? ☒ yes ☐ no  
 All sheds, scale houses, and other structures will be removed from the site? ☒ yes ☐ no  
 If either answer is yes, give details. If no, explain: **All debris will be removed from the mine site upon final reclamation. No structures exist in relation to this project that would require removal.**

### 27. REVEGETATION

The mine site is in: ☐ eastern Washington  
☒ western Washington

The mine site is: ☐ wet ☒ dry?

The average precipitation is **40-70 in.** per year.

Revegetation will start during the first proper growing season (fall for grasses and legumes, fall or late winter for trees and shrubs) following restoration of slopes? ☒ yes ☐ no  
 If yes, give details. If no, explain: **See Revegetation Schedule in the Narrative.**

Test plots will be used to determine optimum vegetation plans? ☐ yes ☒ no

The site will not be revegetated because: **N/A**

☐ It is a rural area with a rainfall exceeding 30 inches annually and erosion will not be a problem (requires approval of DNR).

☐ Demonstration plots and areas will be used to show that active revegetation is not necessary.

☐ Revegetation is inappropriate for the approved subsequent use of this surface mine.

Explain:

Documentation is attached? ☐ yes ☐ no

#### 7A. Recommended Pioneer Species

In the Sections below, check the species that will be planted at your mine site:

**\* indicates nitrogen-fixing species**

## CHECKLIST OF RECLAMATION STANDARDS

### Western Washington Dry Areas

- |  |  |   |   |
|--|--|---|---|
| <input checked="" type="checkbox"/> alfalfa*     | <input type="checkbox"/> Lupine*               | <input checked="" type="checkbox"/> clover*   | <input checked="" type="checkbox"/> orchard grass |
| <input type="checkbox"/> cereal rye              | <input type="checkbox"/> perennial rye         | <input type="checkbox"/> colonial bent grass  | <input type="checkbox"/> ponderosa pine           |
| <input type="checkbox"/> creeping red fescue     | <input checked="" type="checkbox"/> red alder* | <input checked="" type="checkbox"/> Douglas fir   | <input type="checkbox"/> shore pine               |
| <input checked="" type="checkbox"/> ground cover | <input type="checkbox"/> shrubs                | <input checked="" type="checkbox"/> other big bluegrass, Columbia brome, Timothy, tall fescue, Burnet |   |

### Western Washington Wet Areas

- |  |  |  |                                 |
|--|--|--|---------------------------------|
| <input type="checkbox"/> birdsfoot trefoil | <input type="checkbox"/> sedges          | <input type="checkbox"/> cedar               | <input type="checkbox"/> tubers |
| <input type="checkbox"/> cottonwood        | <input type="checkbox"/> wetland grasses | <input type="checkbox"/> creeping red fescue | <input type="checkbox"/> willow |
| <input type="checkbox"/> red alder*        | <input type="checkbox"/> other           |  |                                 |

### Eastern Washington Dry Areas

- |   |   |                                   |   |
|---|---|-----------------------------------|---|
| <input type="checkbox"/> alder*             | <input type="checkbox"/> grasses        | <input type="checkbox"/> alfalfa* | <input type="checkbox"/> juniper                  |
| <input type="checkbox"/> black locust       | <input type="checkbox"/> lodgepole pine | <input type="checkbox"/> clover   | <input type="checkbox"/> lupine*                  |
| <input type="checkbox"/> deciduous trees    | <input type="checkbox"/> ponderosa pine | <input type="checkbox"/> shrubs   | <input type="checkbox"/> deep-rooted ground cover |
| <input type="checkbox"/> diverse evergreens | <input type="checkbox"/> other          |                                   |   |

### Eastern Washington Wet Areas

- |                                       |                                     |                                 |                                 |
|---------------------------------------|-------------------------------------|---------------------------------|---------------------------------|
| <input type="checkbox"/> alder*       | <input type="checkbox"/> cottonwood | <input type="checkbox"/> poplar | <input type="checkbox"/> sedges |
| <input type="checkbox"/> serviceberry | <input type="checkbox"/> tubers     | <input type="checkbox"/> willow |                                 |
| <input type="checkbox"/> other        |                                     |                                 |                                 |

Give planting details (stems/acres of trees and shrubs, see Forest Practices manual; lbs/acre of grass, legume, or forb mixture):

**Trees planted at 435 stems/acre.**

**Groundcover seeded at 20#/acre with 200#/acre fertilizer as needed.**

**SEE NARRATIVE**

Describe weed control plan:

**SEE NARRATIVE**

### 27B. Planting Techniques

Revegetation at this site will require:

- |  |   |  |
|--|---|--|
| Ripping and tilling?                               | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |
| Blasting to create permeability?                   | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
| Mulching?  | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
| Irrigation?  | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
| Fertilization?                                     | <input checked="" type="checkbox"/> yes | <input type="checkbox"/> no            |
| Importation of clay- or humus-bearing soils?       | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
| Other soil conditioners or amendments?             | <input type="checkbox"/> yes            | <input checked="" type="checkbox"/> no |
| Give details: <b>Fertilizer applied as needed.</b> |   |  |

Trees and shrubs will be planted in topsoil or in subsoil amended with generous amounts of organic matter? ☒ yes ☐ no

If yes, give details. If no, explain: **Trees will be planted in topsoil and/or subsoil. See Narrative.**

Mulch will be piled around the base of trees and shrubs? ☐ yes ☒ no

High quality stock will be used? ☒ yes ☐ no

Trees and shrubs will be planted while they are dormant? ☒ yes ☐ no

Stock will be properly handled, kept cool and moist, and planted as soon as possible? ☒ yes ☐ no

Seeds will be covered with topsoil or mulch no deeper than one-half inch? ☒ yes ☐ no

If any answers are no, explain: **No mulch will be required.**

### 28. FINAL CHECKLIST

All required maps are attached (*See Instructions for detailed requirements*)? ☒ yes ☐ no

All required cross-sections are attached (*See Instructions for detailed requirements*)? ☒ yes ☐ no

Geologic map attached (if required)? *See Appendices.* ☒ yes ☐ no

All documents submitted have the date, the name and address of the permit holder, and the application number on every page of the material? ☒ yes ☐ no

The plan contains predominantly relevant information? ☒ yes ☐ no

## CHECKLIST OF RECLAMATION STANDARDS

Have you completed the SM-6 and has it been signed by the local jurisdiction?	<input checked="" type="checkbox"/>	yes	<input type="checkbox"/>	no
Have you provided the SEPA checklist? <b>See Appendix B.</b>	<input type="checkbox"/>	yes	<input checked="" type="checkbox"/>	no
Have you provided a copy of the SEPA Determination (DNS, MDNS, or DS)? <b>See Appendix B.</b>	<input checked="" type="checkbox"/>	yes	<input type="checkbox"/>	no
Have you attached photographs?	<input type="checkbox"/>	yes	<input checked="" type="checkbox"/>	no
Are additional supplemental studies included?	<input checked="" type="checkbox"/>	yes	<input type="checkbox"/>	no
<p>If yes, check the appropriate box(es) below:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;"><input type="checkbox"/> Archeological</div> <div style="width: 50%;"><input checked="" type="checkbox"/> Geohydrologic</div> <div style="width: 50%;"><input type="checkbox"/> Backfill</div> <div style="width: 50%;"><input type="checkbox"/> Slope stability</div> <div style="width: 50%;"><input type="checkbox"/> Topsoil</div> <div style="width: 50%;"><input type="checkbox"/> Flood plain</div> <div style="width: 50%;"><input type="checkbox"/> Conservational</div> <div style="width: 50%;"><input type="checkbox"/> Vegetation</div> <div style="width: 50%;"><input checked="" type="checkbox"/> Other <b>SEE NARRATIVE</b></div> </div>				
Other permits required?	<input checked="" type="checkbox"/>	yes	<input type="checkbox"/>	no
<p>If yes, check the appropriate box(es) below:</p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> Shoreline permit</div> <div style="width: 33%;"><input type="checkbox"/> Water Discharge Permit</div> <div style="width: 33%;"><input type="checkbox"/> Solid Waste Permit</div> <div style="width: 33%;"><input type="checkbox"/> Air Quality Permit</div> <div style="width: 33%;"><input checked="" type="checkbox"/> NPDS or General Discharge Permit</div> <div style="width: 33%;"><input type="checkbox"/> Hydraulic Project Approval</div> <div style="width: 33%;"><input checked="" type="checkbox"/> Special or Conditional Use Permit</div> <div style="width: 33%;"><input type="checkbox"/> Other</div> </div>				

# CHECKLIST OF RECLAMATION STANDARDS

**When signed by the applicant and approved by the Department of Natural Resources, this document and the associated maps, cross sections, reclamation narrative, and other attachments will be the approved reclamation plan for this permit that the permit holder must follow. Significant variations from the approved reclamation plan may require that a new plan be submitted to the Department for approval.**

The applicant shall be considered as the permit holder for this surface mine and shall be responsible for compliance with Chapter 78.44 RCW, Chapter 332-18 WAC, the approved reclamation plan and attachments, and the conditions of the permit if issued by the Department of Natural Resources.

I hereby agree to comply with this plan.  
Signature of applicant or company representative

*[Handwritten Signature]*

Name and Title of Company Representative  
(Please print) JASON B. GOOD OWNER  
ROY L. GARRISON  
RECLAMATION & SOILS SPECIALIST

Date signed

10/8/03

## SURFACE OWNERSHIP (~~For New Permits Only~~)

Give names, addresses, and signatures of all individuals with possessory interest in land.

(attach signed copies of this page if more than one)

I verify that the applicant has my permission to mine from my land.

Signature of landowner(s)

Date Signed

SAME AS ABOVE

I hereby verify that I have seen and approved this plan.

Signature of landowner(s)

Date Signed

## OWNERSHIP OF RIGHTS TO REMOVE MINERALS BY SURFACE MINING (~~For New Permits Only~~)

Give names, addresses, and signatures of all individuals with rights.

(attach signed copies of this page if more than one)

I verify that the applicant has my permission to mine this land.

Signature of rights owner(s)

Date Signed

SAME AS ABOVE

I hereby verify that I have seen and approved this plan.

Signature of rights owner(s)

Date Signed

## FOR DEPARTMENTAL USE ONLY

Date accepted

Accepted by:

Title:

Reclamation Permit No.

70-012859

Comments by Department:

RECEIVED  
MAR 04 2004  
Geology and Ecology

## **1 – INTRODUCTION**

On behalf of Good, Inc. (Good), Ecological Land Services, Inc. (ELS) has prepared this surface mine reclamation permit revision application and reclamation plan for the existing Good Quarry operated under Washington State Department of Natural Resources (DNR), Surface Mine Reclamation Permit Number 70-012859. This reclamation plan, including the narrative, DNR forms, supplemental studies, maps, figures and Lewis County conditions, is intended to satisfy the DNR requirements as stated in *Chapter 78.44 Revised Code of Washington* (RCW). DNR SM-6 and SM-8A forms are included in Appendix A.

## **2 – SITE DESCRIPTION**

### **2.1 – Site Location**

The Good Quarry is located in the Southeast ¼ of the Northwest ¼ and Northeast ¼ of the Southwest ¼ of Section 8, Township 12 North, Range 2 West, W.M. in Lewis County, Washington. Refer to Figure 1. The mine entrance is located approximately 4 miles west of Interstate 5 with access via State Route 603 to Hale Road to Tennessee Road. A permanent access road to the quarry is located west of Tennessee Road at Mile Post 3.08. There is no street address assigned to the pit.

### **2.2 – Background**

Operations at the Good Quarry began in the fall of 1998, after Lewis County issued an SM-6 Form as required by the DNR, which in turn DNR approved the reclamation plan and issued permit #12859. The Department of Ecology (Ecology) acted as SEPA lead agency and issued an MDNS. The reclamation permit authorizes Good, Inc., to operate a surface mine on 32.0 acres at the aforementioned location.

After the SEPA MDNS was withdrawn by Ecology, in order to resolve a dispute between Ecology, DNR and Lewis County over which agency would conduct a new SEPA review, in July, 2000, Good applied to Lewis County for a Special Use Permit and submitted an Expanded Environmental Checklist for the Good Aggregate Quarry. Lewis County acted as co-lead agency with Ecology to again review SEPA issues for the Quarry.

May 31, 2001, the Lewis County Hearings Examiner affirmed the County staff decision to issue an amended MDNS and approved the Special Use Permit, subject to conditions (LCHE No. 01-2-001). Refer to Appendix B.

April 14, 2002, The Superior Court Of The State Of Washington In And For The County Of Lewis (No. 01-2-00775-9), affirmed the decision of Hearings Examiner. Refer to Appendix B.

Mitigation activities, including the construction of a berm required by the new SEPA review and Special Use Permit continued through 2002.

August 19, 2003, The Court Of Appeals Of The State Of Washington, Division II upheld the County's SEPA MDNS and determined that the County Special Use Permit was unnecessary due to vesting against the County's Special Use Permit regulations. Refer to Appendix B. Accordingly, any Lewis County special use permit requirements no longer apply to the Good Quarry.

The mine plan provides for the removal of approximately 750,000 cubic yards of basalt from the subject property. Raw material processing will take place on the permitted site with portable equipment to be located in the staging area.

As part of the Expanded Environmental Checklist several studies were conducted to evaluate and review the hydrogeology and geology of the mine site. Kleinfelder, Inc., provided a *Hydrogeologic Assessment Proposed Good Quarry Site Evaline, Washington, September 27, 1995*. On October 2, 1998, Civil Solutions provided an *Addendum to: Hydrogeologic Assessment Proposed Good Quarry Site Evaline, Washington* by Kleinfelder, Inc. SubTerra, Inc., provided a *Geologic Reconnaissance and Review of Rock Quality Data Good Quarry, Napavine, Washington, May 28, 1999*, which included a blasting and vibration analysis.

The reclamation and stormwater plans have been updated to include conditions imposed by the DNR on issuance of the 1998 surface-mine reclamation permit and additional SEPA and Special Use Permit conditions imposed by the Hearings Examiner in 2001, which include the 2001 Lewis County staff recommendations.

July 15, 2003 DNR issued A Order To Rectify Deficiencies, Good appealed the order and a pre-hearing conference occurred on November 20, 2003. A hearing in this appeal is set for May 21, 2004. Stipulations were agreed upon between Good and DNR January 12, 2004 (OAH Docket No. 2003-DNR-0004) for the period between the execution of the stipulation and the hearing date (Appendix B). The hearing may not be necessary if the DNR approves the modification of this reclamation plan. It is the intent of this modified reclamation plan to address all the stipulations and items of the Order.

This reclamation plan revision is based upon recent topographic and boundary surveys performed by Butler Surveying during July and August 2003. Significant discrepancies were discovered between the recent survey and the topographic conditions used to provide the original reclamation plan in 1997. Elevation differences between Butler's survey and the USGS 7.5-minute topographic maps that appear to have been used previously are approximately 180 +/- feet within the permit area. This is a common discrepancy usually associated with formatting of the USGS 7.5-minute quadrangle map using aerial photographic methods at a time when this property was covered by mature Douglas fir trees.

The variation in elevations between the original plan and the 2003 surveys is pertinent because prior conditions imposed by the DNR state "*No mining of material shall occur below an elevation of 510+/- feet Mean Sea Level (MSL) as shown on plan maps.*" (Reclamation Permit #70-012859, Exhibit 'A'- November 1, 1998, page 2). The 500-foot contour shown on the Pre-Mining Plan View of the 1997 Reclamation Plan transects the

staging area within the disturbance boundary. This area has not undergone any topographical changes since the 1997 Reclamation Plan was submitted. The recent Butler survey established elevation within the staging area at 320 feet MSL; a difference of 180 feet from that indicated on the original plan. The revised plan has adjusted the site contours to reflect the MSL elevations established in the most recent survey.

### **2.3 – Subsequent Use**

As mining and reclamation are completed, the property will be restored to forestry. The project site is located in a Rural Development District (RDD). Gravel and rock mining operations are an allowed use in the RDD zone with a Special Use Permit (LCC17.100.020 Title 17, Zoning). Native tree species will be planted as part of the reclamation plan, and small openings within the forest will be seeded with grasses and legumes to promote diversity and wildlife habitat. Refer to the Revegetation Plan for details.

Land uses in the surrounding area include forestry, agriculture and two quarries. The Johnson Brothers and the Lewis County Hale Road quarries are on adjacent properties to the south. Refer to Figure 2 – Property Ownership Map for adjacent land owners.

## **3 - GEOLOGY AND HYDROLOGY**

### **3.1 – Regional And Site Geology**

In an effort to minimize repetition, the following supplemental reports are referenced to provide more detailed descriptions of the regional and site geology than is otherwise presented in this section. A geologic study of the area is provided in the SubTerra, Inc., report, *Geologic Reconnaissance and Review of Rock Quality Data Good Quarry, Napavine, Washington, May 28, 1999* (Appendix C). The study includes a summary by Walsh et al. (1987) Washington Division of Mines & Geology Map GM-34: “the primary geologic unit mapped within the area of the mine is Grande Ronde basalt -- a relatively fresh subaerial basalt.”

### **3.2 – Groundwater**

Kleinfelder, Inc., provided a *Hydrogeologic Assessment Proposed Good Quarry Site Evaline, Washington*, September 27, 1995 (Appendix D). The conclusions of this report stated that “quarry operations have no apparent effect on the water quality and construction of wells within the vicinity of the planned quarry.” On October 2, 1998, Civil Solutions provided an *Addendum* to the Kleinfelder report (Appendix D) to further assess groundwater in the vicinity of the mine site.

The 1998 addendum report addressed nine additional wells that were drilled after the 1995 assessment, and the effects of mining depth as referred to in the original surface-mine permit application, on the hydrology of the area. Two of the additional wells were located above the proposed elevation of the quarry floor (#16 and 19), with water levels ranging from 55 feet to 120 feet below the elevation of the quarry floor. It should be noted that water levels in the reports were based on well logs, and used the number of feet drilled

below ground surface as a standard. Therefore, the change in elevation designations resulting from the Butler survey has no effect on the relative location of the quarry, quarry floor and aquifer. The remaining seven well- surface elevations were located below the quarry floor and the addendum report stated that “no undercutting of their aquifer is possible.” Both hydrogeologic assessments determined that quarry operations would have no effect on the local hydrogeologic conditions affecting these wells. As discussed in both of these reports, the “water table” in the vicinity of the mine is well below the proposed elevation of the quarry floor. Groundwater movement is in a northeasterly direction and is defined as both a confined and unconfined aquifer (Kleinfelder).

## **4 – MINING AND RECLAMATION**

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### **4.1 – Segmental Mining and Reclamation**

The existing permit boundary encompasses 32.0 acres (Figure 3). Approximately 21.1 acres within the permit boundary have been disturbed by mining operations, which includes the rock extraction area, staging area, dirt road and acoustic berm. Of the total area disturbed by mining operations only 14.8 acres will require soil replacement at the completion of mining. The remaining 6.3 acres, which includes the acoustic berm, 1:1 slopes and permanent ponds, will not require additional soil placement. The total area proposed for rock extraction is relatively small (10.9 acres) and therefore will comprise of one mining segment and one phase of reclamation (Figure 4).

Maximum depth of mining at any given point is 105 feet below ground surface (bgs), located in the southwest corner of the rock extraction area, which is consistent with the original permit. Maximum elevation difference within the mining disturbance boundary is 130 feet, from the highest elevation of 450 feet MSL at the western edge of the mining area to the lowest elevation of 320 feet MSL within the staging area.

A sinuous post-mining topography will be constructed during mining operations as slopes are excavated between 1H:1V and 2H:1V. A reclamation setback will be staked to establish the appropriate horizontal distance to construct the postmining topography. Refer to Section 4.4 for setback descriptions. Figure 5 illustrates the final configuration of the reclaimed mine area upon completion of mining activities. No backfilling will be required to create final slope configurations since excavation will utilize cut-to final topography mining techniques. Refer to Cross Sections on Figure 6.

### **4.2 – Topsoil and Subsoil Plan**

The U.S.D.A. Soil Conservation Service, *Soil Survey Of Lewis County Area, Washington* (1980), describes topsoil on-site as Olympic silty clay loam, 8 to 30 percent slopes. According to the Soil Survey, topsoil consists of dark brown silty clay loam about 12 inches thick (A and AB horizons). Subsoil (Bt horizons) varies from dark reddish brown silty clay in the upper 20 inches to yellowish red clay to a depth of 60 inches. Permeability of this soil is moderately slow and available water capacity is high. Runoff is medium, and hazard of water erosion is moderate.

An inconsistent topsoil recover depth was described in the previous 1997 soil budget prepared by Cowlitz Geotechnical. The 1997 budget described no distinction between topsoil and subsoil for the majority of the mine disturbance area. The lack of separation in the soils profiles was due to previous clearing and grubbing of stumps and vegetation. Lack of distinction between topsoil and subsoil profiles appears to be representative of conditions on the relatively steep slopes. Rock outcroppings were also common in the mine disturbance boundaries. Based on the volume of topsoil currently stockpiled, it would appear that topsoil and subsoil was collectively removed from a portion of the existing disturbed area and stockpiled in the acoustics berm when it was being first being constructed. Where topsoil can be distinguished, primarily along the western edge of the rock extraction area and flatter slopes, it will continue to be stockpiled separately in the future. Stockpiled and remaining topsoil to be stripped will be salvaged and redistributed on reclaimed slopes as specified below.

All but approximately 4.6 acres of topsoil and subsoil from the 10.9 acres proposed for rock extraction have been removed and stockpiled to date. Approximately 81,745 cubic yards of subsoil have been permanently placed in an acoustic berm with an additional 68,552 cubic yards still in place along the western boundary of the rock extraction area. The berm will be revegetated and permanently remain in place. Refer to Section 6.1 for revegetation specifications.

The remaining subsoil in place will be sufficient to reclaim the site. The acoustics berm was placed over native soils along the northern property boundary, an area that is well outside of proposed mining activities. The acoustic berm was required by Lewis County as a condition of the Special Use Permit [and new SEPA review]. The new MDNS required noise from the quarry to be mitigated by construction of a berm. Compliance with those standards required construction of a larger acoustic berm than the berm shown on the 1997 DNR Reclamation Plan. As part of the January 12, 2004 Stipulation (2.c.i.), the acoustic berm will be formally monitored through June 2004 or through the end of the rainy season, which ever occurs first. Monitoring will be in accordance with a DNR approved monitoring plan (Appendix B) and conducted by a DNR-approved and licensed engineering geologist.

In addition to approximately 1,000 cubic yards of topsoil that is stockpiled, an additional 4,823 cubic yards are still in place. Refer to Reclamation Sequence Map (Figure 4) for location of soil stockpiles. Refer to the Soil Budget (Table 4.1) showing overall soil material budget for the site. Soil and overburden volumes were calculated using field measurements, Butler survey, AutoCAD and Boston Harbor Software, Inc. Digital Terrain Models (DTM) were created by generating Triangulated Irregular Networks (TIN) with 3D points. Cut volumes were computed for the DTM's. A topographic survey completed in August, 2003, by Butler Surveying, Inc., was primary source used for data point generation.

Because there will be shortages of topsoil due to the inconsistent and relatively shallow depth of the native soil, specific slopes will be prioritized for topsoil replacement. Topsoil will be prioritized for south and southwesterly exposures (5.8 acres) that receive direct sunlight during the warmest and longest days of the year causing drought conditions.

# TABLE 4-1

## Soil Budget For Good Quarry Revised Reclamation Plan

Mining Segment	Reclamation Phase	<sup>1</sup> Acres	ESTIMATED TOPSOIL VOLUME (cy)			ESTIMATED OVERBURDEN VOLUME (cy)		
			<sup>2</sup> Topsoil Available	Topsoil For Reclamation	Surplus Topsoil	<sup>3</sup> Overburden Available	Overburden For Reclamation	Surplus Overburden
Seg. - 1	Phase 1	14.80	5,823	5,823	-	150,297	62,262	88,035
	Totals	14.80						

<sup>1</sup> 14.8 acres to be reclaimed: 21.1 acres disturbed minus (4.5 acres of acoustic berm and dirt road)+(1.4 acres of 1:1 slopes)+(0.4 acres permanent pond).

<sup>2</sup> Topsoil stockpiled and remaining to be stripped.

<sup>3</sup> 81,745 cy stored in acoustic berm and 68,552 cy remaining to be stripped.

### Assumptions:

**Maximum Mining Depth:** 105 feet below ground surface.

**Permit Boundary Acreage:** 32.0 acres.

**Mining Disturbance Boundary:** 21.1 acres (includes 4.5 acres for acoustic berm and dirt road, where no soil placement is required)

**Topsoil Salvage Depth:** Inconsistent depth (0-14 inches), as described in the 1997 soils budget, due to clearing and grubbing of the stumps on the relatively shallow topsoil no distinction between the topsoil and subsoil remained. Therefore, topsoil and subsoil were salvaged as one soil.

**Remaining Overburden Depth:** Approximately 5.0 feet in depth (inconsistent depth).

**Topsoil Placement Depth:** Approximately 0.5 feet over 5.8 acres, refer to reclamation narrative for specifics.

**Volumes:** Cubic yards based on in situ calculations (no swell factor included).

### Calculations Notes:

**Topsoil Available:** Volume based on: Approximately 1,000 cy in 2 stockpiles and 4,823 cy to be stripped (0.65 feet wt. average over 4.6 acres).

**Topsoil Placement:** 0.5 feet placement depth over 5.8 acres. (Refer to narrative for topsoil placement on specified slopes).

**Overburden Available:** Volume based on 81,745 cy stored in acoustic berm and 68,552 cy remaining to be stripped.

**Overburden Placement:** 3.0 ft over 9.0 acres and 2.0 ft. over 5.8 acres (0.5 ft. of topsoil over 5.8 acres).

**Existing Topsoil Stockpile Volume:** Approximately 1,000 cubic yards.

Slopes with these conditions will require additional soil-moisture-holding capacity to sustain successful revegetation. The vegetation specifications for the site take into account topsoil replacement locations with regard to slope position.

Topsoil will be replaced to an approximate depth of 0.5 feet over the prescribed reclaimed slopes during the dryer months of the year. Subsoil will be placed at a minimum depth of 2 feet under topsoil placement areas and 3 feet where topsoil is not placed (excluding reclaimed 1:1 slopes and ponds). One foot of topsoil will be left in place at stockpile locations and ripped prior to final reclamation to facilitate revegetation. Topsoil will be replaced evenly over the prescribed slopes with scrapers or truck/dozer operations. Dozers and or backhoes may be used to configure the final slope and prepare the seedbed. Some micro relief, such as shallow depressions and ridges from ripping and topsoil replacement operations will be left in the reclaimed surfaces and on the slopes around the final ponds. This micro-topography will promote understory vegetation germinating from native seed in the topsoil and assist in sediment capture during the initial years following reclamation.

A total of 5,823 cubic yards of topsoil will be salvaged. Because the existing topsoil and subsoil is conducive to supporting native vegetation and those other species planned for reclamation, no topsoil supplements will be required. Materials such as till, loess or shale will not be used to supplement topsoil for reclamation. At the completion of the project, silts will be left in place within the permanent pond to promote a rooting medium for hydrophytic vegetation. Slurry materials are not expected or considered to be significant in the settling ponds, based on the composition of the material being processed.

Areas on which soil is placed will be revegetated with prescribed species during the first fall or winter after completion of mining.

#### **4.3 – Backfilling**

No backfilling is proposed for reclamation of this site.

#### **4.4 – Setbacks and Buffers**

A 15-foot setback from the permit boundary will be staked around the proposed mining area, allowing for equipment access and topsoil storage. No mining will occur within the 15-foot setback. Reclamation setbacks have been established to define the toe and crest of the reclaimed slopes (refer to cross sections and post mining topography, Figures 4, 5, & 6). The reclamation setback identifies the appropriate horizontal distance between the pit floor (toe) and 15-foot setback (crest) to establish the postmining topography using the cut-slope method. The reclamation setback will vary in horizontal distance depending on final mining depth and postmining slope gradient.

A 25-foot buffer has been established along the intermittent drainage located north of the mining area, per Lewis County Interim Critical Areas Ordinance (17.35.680) for rural Type 5 streams.

Per the aforementioned January 12, 2004 Stipulation, the following interim setbacks are in place: 1) a 100 foot mining limit from the permit/ property boundary, 2) a 50 foot setback from the typed stream within the permit boundary. These boundaries are identified on Figure 3.

Based on the findings of the Lewis County Hearings Examiner (May 31, 2001), reviewing the SEPA MDNS issued by Lewis County as co-lead agency with the Department of Ecology, a 25-foot-high acoustic berm along the northern and northeastern sides of the mine was required without specifying a setback from the property boundary. This berm has been constructed, and the operator has provided a sufficient setback for access along the northern toe of the berm.

No other setbacks are required per the Lewis County Special Use Permit, refer to Appendix B for letter from Douglas Jensen, Lewis County Civil Deputy Prosecutor, February 4, 2004. For more information, please see the discussion of land use proceedings and appeals in section 2.2. In the interests of being a good neighbor, the Good Quarry continues to voluntarily comply with many of the operational conditions imposed by Lewis County. In addition, Good continues to comply with the terms of the MDNS issued for the Quarry by Lewis County as co-lead agency with the Washington State Department of Ecology. The MDNS, dated January 18, 2001, as amended by the Lewis County Hearing Examiner's decision dated May 31, 2001, also does not include any requirements for setbacks from the property lines or permit boundary. Property line setbacks and reclamation setbacks can be determined by DNR.

## **5 - EROSION CONTROL**

### **5.1 – Existing and Proposed Stormwater**

The mining disturbance boundary includes areas where vegetation has been cleared, grading and removal of overburden, rock extraction, rock processing, material stockpiles and storage areas. Most stormwater flows to the pit floor, which is centrally located to the mining disturbance. Runoff flows in an easterly direction to a two-cell permanent sediment pond system before being conveyed through a permanent culvert and discharged near the eastern permit boundary (Figures 4 and 5). Washington Department of Ecology (DOE) regulates stormwater and processing discharge under a National Pollution Discharge Elimination System (NPDES) general permit. A NPDES general permit (WAG 50-1479) has been issued by DOE (Appendix F).

Preferred Engineering, LLC designed the stormwater system for this revision. Refer to *Good Quarry Hydrology and Hydraulics Report* September 4, 2003, for specific calculations (Appendix E). ELS has prepared a *Stormwater Pollution Prevention Plan for Good Quarry*, September, 2003 (Appendix F), which includes a Monitoring Plan and Erosion and Sediment Control Plan.

## 6 – REVEGETATION PLAN

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### 6.1 – Upland Forestry

Native upland forested communities consisting of conifers and hardwoods interspersed with small open space areas will be established to provide a diverse and successful revegetation scheme. Forested communities will be planted at 435 trees/acre. Due to the relatively small rock extraction area (10.9 acres) and total area to be reclaimed (14.8 acres), reclamation of the site will commence at the completion of mining with the exception of the acoustic berm. The berm will be reforested the first planting season following monitoring, typically February through March. As described in Section 4.2, topsoil will be placed on the south and southwestern slopes. Douglas fir is best suited for these slopes and Red alder on the remaining areas. Red alder is a species that is naturally suited for these soils and slope exposures. This forestry prescription is typical of natural and disturbed landscapes throughout the Pacific Northwest.

Existing mature vegetation adjacent to the permit boundary will maintain existing wildlife habitat and allow for natural vegetation propagation. Operator will need to monitor and control, if necessary, invasive and deleterious vegetation that may prohibit required stocking levels. A mixture of shrubs and trees will remain on-site in the areas that are not proposed for mining disturbance. Table 6-1 shows vegetation planned for reclamation. Bare-root trees from within proper seed zones will be supplied by a local nursery.

TABLE 6-1

#### Upland Forest Revegetation Specifications

Species Common Name	Scientific Name	Planting Method	Planting Density	Planting Season
Douglas fir	<i>Pseudotsuga menziesii</i>	Bareroot	435 per acre	Spring
Red alder	<i>Alnus rubra</i>	Bareroot	435 per acre	Spring

### 6.2 - Open Space/Soil Stabilization

Small, randomly positioned open space areas within uplands will be seeded with a grass/legume mix at 20 pounds per acre to promote wildlife forage. Fertilizer will be broadcast at a rate of 200 lbs./acre in these areas on an as-needed basis. These small pockets will be located in areas that will complement the function and value of the upland forest. The seed mix identified in Table 6-2 is a combination of native and non-native species recommended by Washington Department of Fish and Wildlife to provide effective soil stabilization, soil nutrients and wildlife forage. This prescription can be substituted with a comparable mix. Where practical, large woody debris will be salvaged and randomly placed in open areas to provide additional wildlife habitat and shelter. Wet areas around the perimeter of the permanent pond and grass-lined drainage channel will promote natural introduction of wetland and riparian species.

Annual seeding of soil stockpiles and newly cut slopes while mining is still in progress will provide temporary erosion control and assist with long-term reclamation goals for the site.

**TABLE 6-2**

**Open Space and Erosion Control Revegetation Specifications**

<b>Species Common Name</b>	<b>Scientific Name</b>	<b>Planting Method</b>	<b>Planting Density</b>	<b>Planting Season</b>
Big bluegrass	<i>Poa ampla</i>	broadcast	4 %	spring/fall
Columbia brome	<i>Bromus vulgaris</i>	broadcast	20 %	spring/fall
Orchard grass	<i>Dactylis glomerata</i>	broadcast	19 %	spring/fall
Timothy	<i>Phleum pratense</i>	broadcast	10 %	spring/fall
Tall fescue	<i>Festuca arundinacea</i>	broadcast	9 %	spring/fall
W. Dutch clover	<i>Trifolium repens</i>	broadcast	29 %	spring/fall
Ladak alfalfa	<i>Medicago sativa</i>	broadcast	4 %	spring/fall
Burnet	<i>Sanguisorba sp.</i>	broadcast	5 %	spring/fall

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## **LIMITATIONS**

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